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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,482	06/26/2003	Pankai K. Mehrotra	K-1436PC1	5664
27877	7590	06/16/2006	EXAMINER	
KENNAMETAL INC. P.O. BOX 231 1600 TECHNOLOGY WAY LATROBE, PA 15650			SAVAGE, JASON L	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/606,482	Applicant(s) MEHROTRA ET AL.	
	Examiner Jason L. Savage	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41, 43 and 48-54 is/are pending in the application.
- 4a) Of the above claim(s) 1-24, 35-41, 43 and 48-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20030804</u> . | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Applicant's election without traverse of the invention of Group II, claims 25-34 in the reply filed on 3-28-06 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25-26, 28 and 30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Moriguchi et al (US 5,296,008).

Moriguchi teaches a ceramic cutting insert which is heat treated by sintering having excellent wear resistance and toughness (col. 1, ln. 10-14). Moriguchi further teaches that the heat treatment sintering step is performed at between 1700° to 1900°C

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under a pressure (col. 4, ln. 53-67). Moriguchi further teaches that while grinding the surface of a ceramic cutting insert is a conventional processing step, that other methods such as blasting, barreling and ultrasonic vibration may be employed as alternatives to grinding (col. 5, ln. 31-46).

Regarding the use of the specific method steps set forth in the claims, the claims are drawn to the article, not the method of making. Absent a showing how the claimed cutting insert claimed by Applicant would have a material difference between the insert of Moriguchi and that claimed by Applicant it would not provide a patentable distinction over the prior art. The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

In the alternative, it would have been within the purview of one of ordinary skill in the art to have recognized that it may be beneficial to subject the cutting insert of Moriguchi to a grinding process in order to insure that all abnormal phases formed on the surface of the sintered insert would be removed (col. 2, ln. 37-68).

Regarding claim 26, Moriguchi teaches that the cutting insert may be coated (col. 4, ln. 41-52).

Regarding claim 28, the cutting insert of Moriguchi would meet the claimed article limitations.

Regarding claim 30, Moriguchi teaches that the insert may be silicon nitride based and is preferably contained in an amount of at least 90% by weight (col. 4, ln. 53-68). Moriguchi further teaches that other elements may be contained in the insert such as aluminum nitride, alumina, magnesia and yttria in amounts that overlap the ranges claimed (col. 5, ln. 10-30).

Claims 28 and 31-34 are rejected under 35 U.S.C. 103(a) as obvious over Moriguchi et al (US 5,296,008) in view of either Jindal (US 5,858,181) or Beeghly (US 5,628,590).

Regarding claims 28 and 31, Moriguchi teaches what is set forth above however it is silent to the insert being hot isostatically pressed after sintering. Jindal teaches a ceramic cutting insert which may be heat treated by sintering or by hot pressing to form a densified insert (col. 3, ln. 32-47). Beeghly teaches ceramic cutting inserts have be sintered at high temperature or hot pressed in order to achieve full densification of the insert and thus insure that the desired fracture toughness and rupture strength is achieved (col. 1, ln. 35-57)

As such, it would have been obvious to one of ordinary skill in the art to have recognized that hot isostatic pressing could have been employed in forming the cutting insert of Moriguchi in order to insure the insert would be fully densified which would provide the insert with enhance fracture toughness and strength.

Regarding claim 32, Moriguchi is silent to the addition of silicon carbide whiskers. However, Beeghly teaches that it is known to add reinforcing materials such as silicon carbide whiskers to silicon nitride based ceramics (col. 2, ln. 62-67). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have added known reinforcing materials such as silicon carbide whiskers to the cutting insert of Moriguchi.

Regarding claims 33, Moriguchi teaches that the insert may contain zirconia (col. 5, ln. 10-30).

Regarding claim 34, although Moriguchi is silent to the powder material containing titanium carbonitrides, it teaches that when a titanium carbonitrides coating is applied that is it to be expected that the TiCN will be found in the base material due to nitrogen diffusion (col. 4, ln. 41-52). In the alternative, it would have been obvious to have included compounds such as TiCN since it is recognized that the diffusion of this compound can assist in forming a coating which exhibits excellent adhesion strength to the base material.

Claims 25-29 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jindal et al. (US 5,858,181).

Regarding claims 25 and 28, Jindal teaches a ceramic cutting insert which may be heat treated by sintering or by hot pressing to form a densified insert (col. 3, ln. 32-47). Jindal further teaches that the cutting insert may be subjected to a grinding process to provide a fine surface finish (col. 8, ln. 46-67). Regarding the limitation that the heat treatment is performed at the claimed temperature, it would have been within the purview of one ordinary skill in the art to have determined what temperatures would be necessary in order to sinter and/or hot isostatically press the cutting insert of Jindal to provide the insert with suitable strength and toughness properties.

Regarding claim 26, Jindal teaches that the insert is coated (col. 8, ln. 46-67).

Regarding claims 27 and 31, although Jindal does not recite that the insert is formed by sintering and hot isostatically pressing, it teaches that conventional ceramic powder processing techniques and densification may be employed such as hot pressing or sintering (col. 3, ln. 31-47). It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed both sintering and hot isostatic pressing when forming the ceramic cutting insert of Jindal in order to insure the insert was sufficiently densified and exhibited suitable strength and toughness properties.

Regarding claim 29, Jindal teaches that the insert may be alumina based and may contain materials such as silicon carbide whiskers, zirconia and other materials (col. 4, ln. 1-32). Jindal is silent to the addition of the other compounds which are claimed. However, absent a teaching of the criticality of the claimed additives claimed and in the specific amounts recited, it would not provide a patentable distinction over the prior art. The use of ceramics compounds including magnesium, silicon dioxide and

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calcium oxide are known in forming cutting inserts. It would have been within the purview of one of ordinary skill in the art to have recognized that any compounds known to be suitable for use in cutting inserts could be employed in the insert of Jindal with a reasonable expectation of success.

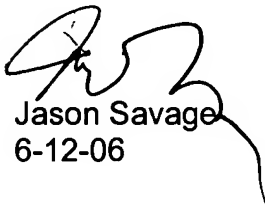
Regarding claims 32-34, Jindal teaches that the insert may be alumina based and may contain materials such as silicon carbide whiskers, zirconia, as well as carbonitrides of material such as Ti (col. 4, ln. 1-32). Although Jindal does not exemplify an embodiment wherein titanium carbonitrides are contained in the cutting insert, it would have been obvious to have added then since it teaches carbide and carbonitrides of titanium may be included.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jason Savage
6-12-06



JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
6/12/06